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Sommario/riassunto	In this work, a deeper understanding of the electrochemical oxidation at SOFC anodes was gained by the experimental characterization of patterned Ni anodes in H ₂ -H ₂ O and CO-CO ₂ atmosphere. By high resolution data analysis, the Line Specific Resistance attributed to charge transfer and its dependencies on gas composition, temperature and polarization voltage were identified. Furthermore, the comparison of the performance of patterned and cermet anodes was enabled using a transmission line model.